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ABSTRACT

This booklet provides a glimpse of the progress of vocational equity efforts in Ohio during the 1980s. It focuses on enrollment trends and the wages received by individuals who completed job training programs. It contains charts showing enrollments in 1980 and 1990 in the following major vocational technical areas: agriculture, marketing, health, occupational home economics, consumer and homemaking, business and office, and trade and industry/technical. The charts show the percentages of female enrollment in four categories: total, the combined 11th and 12th grades, associate degrees, and adult programs excluding apprenticeships. Earnings of program completers in 1980 and 1989 are compared, with wages adjusted for inflation, and emerging occupations are noted briefly. The data presented in the booklet suggest that there was some progress toward increased equity in vocational education in the 1980s, but the advances varied significantly among program areas and grade levels. In most occupations, however, males still earned more than females and in a few cases the differences were larger in 1989 than in 1980. (KC)

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Vocational Equity in Ohio

During the 1980s

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Enrollment

Earnings

Opportunities

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Vocational Equity in Ohio During the 1980s:

Enrollment, Earnings, and Opportunities

This publication was prepared for the Division of Vocational and Career Education, Ohio Department of Education, by the Center on Education and Training for Employment at The Ohio State University. Morgan V. Lewis and Paula Kurth assembled the information and Kathy Kush prepared the charts. The preparation of this publication was monitored by Connie Blair, Vocational Equity Coordinator, who contributed many helpful suggestions to its development.

Purpose

Efforts to overcome sexual stereotyping and encourage equity in vocational programs have been explicit goals of public vocational education since 1976. This has been a relatively short time in which to address many of the most deeply held personal beliefs and long-established practices in our society.

This booklet provides a glimpse of the progress of vocational equity efforts in Ohio during the 1980s. The booklet focuses on enrollment trends and the wages received by individuals who completed job training programs. These are admittedly imprecise indicators for they are influenced by many factors beyond what happens in vocational classrooms. Nevertheless, they provide unambiguous signals that while there has been some progress, much more remains to be done to provide equal educational opportunities to all students regardless of their sex, race, color, national origin, or circumstances of birth.

The booklet presents charts showing enrollments in 1980 and 1990 in the eight major areas in which vocational-technical programs are offered. The charts show the percentages of female enrollment in four categories: total, the combined eleventh and twelfth grades, associate degrees, and adult programs excluding apprenticeships. Earnings of program completers in 1980 and 1989 are compared. Wages earned in 1980 are adjusted for inflation to make them comparable with those earned in 1989. Jobs that are likely to provide employment opportunities in the 1990s are briefly noted. Some emerging occupations are noted for they are less likely to be sexually stereotyped.

For additional discussion of the information presented and the sources of the data see the section "Technical Notes."

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Overview

The evidence presented in this booklet suggests that, overall, there was some progress toward increased equity in vocational education in the 1980s, but the advances varied significantly by program level and occupational area. For some programs enrollments moved toward more balance at the secondary level for others the movement was in adult programs. Similarly, in some occupations, the gender differences in wages became smaller between 1980 and 1989. In most occupations, however, males still earned more than females and in a few cases these differences were larger in 1989 than in 1980.

Enrollments

- Traditionally, enrollments in seven of the eight vocational program areas have been predominantly of one sex or the other. Marketing is the only area that has had almost equal numbers of males and females. The effort to overcome sex stereotyping in vocational education has attempted to move toward more balanced enrollments. In the 1980s, the trends in total enrollment in six of the eight program areas were toward more equal representation of males and females.

- The most progress toward more balanced enrollments occurred in Consumer and Homemaking and Business and Office programs (both predominantly female) where the percent of female declined 11 and 12 points, respectively.

- Progress was also made in Agriculture (predominantly male) where the percentage of females increased 7 percentage points and in Health (predominantly female) where the percentage of males increased 8 points.

- In Marketing (traditionally balanced) and Trade and Industry (predominantly male) the changes were quite modest, 2 and 3 percentage points, but both were in the direction of more equal balance.

- The total percentage of females enrolled in technical programs (predominantly male) did not change in the in the 1980s, but the percentage of females pursuing associate degrees increased 2 percentage points.

- In Job Training Home Economics (predominantly female), female enrollments increased 2 percentage points, a move toward less equal balance.

Movement toward more balanced male and female enrollments varied by level across the program areas. In Agriculture, Health, and Business and Office programs, the trends toward more equal representation were heavily influenced by adult enrollments in part-time programs. In Job Training Home Economics, Useful Home Economics and T & I programs, however, male-female enrollments were more balanced in secondary than in adult programs.

Wage Rates

In most occupations, females who completed vocational programs received lower wages than males from these programs. This was true in 1980 and continued to be true in 1989. Even when the effect of inflation is controlled, the wage difference for secondary programs increased from 57 cents per hour in 1980 to 65 cents in 1989 and from 59 cents to $1.13 per hour for those who completed full-time adult programs.

Overview

The notable exception to this gender difference is for females recipients of associate degrees who in 1989 earned an average of $1.03 more than males who received degrees. This difference, however, was due entirely to the wages of females in health occupations. In 1989 over 400 more females received associate degrees in health occupations than males received degrees in all program areas. When the wages of females from health occupations are included with all females who received associate degrees, the result is an advantage for all females. In all other areas in which associate degrees were awarded, males received higher wages than females. The higher male wages in the other areas were not enough, however, to overcome the female advantage in health occupations.

Some may be interested in how the wages of vocational students compare to those without vocational training. A study of secondary vocational graduates showed that four years after high school they earned from 23 percent to 72 percent more, depending on the vocational skills studied, than similar individuals in the general population from the same areas of Ohio.

Opportunities

The occupational areas with the most growth and change reflect economic, technological, and demographic changes in our society. Jobs are being lost in manufacturing and created in industries that produce and disseminate information and provide services.

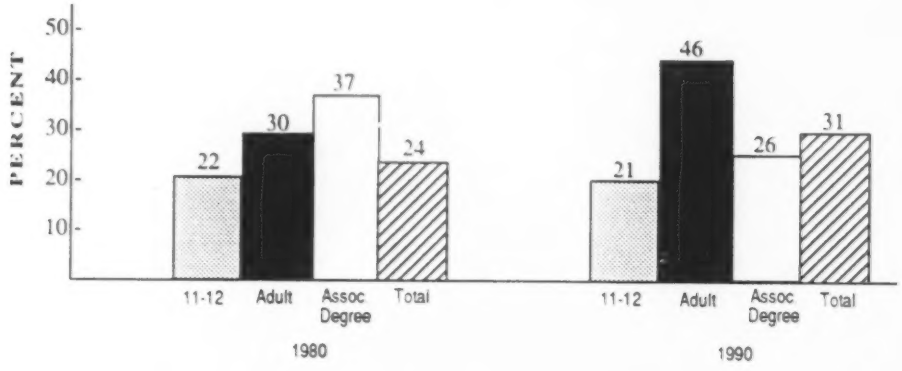
Overview

The application of microelectronics technology is changing occupations in all industrial sectors. These changes are creating a widespread demand for individuals who can apply microelectronics to produce, repair, maintain, and use products incorporating this technology. Vocational programming focusing on, or incorporating, microelectronic technology will prepare students with the skills needed for the occupations of the future.

The aging of the population and increasingly sophisticated medical technology are creating a continuing demand for health care workers. Most occupational growth is occurring in service, not goods producing, industries. Graduates of vocational programs emphasizing health and service industries will be increasingly in demand.

Agriculture

Enrollments: Agriculture enrollments have always had many more males than females, but in the 1980s the percentage of females increased from 24 to 31 percent. All of this increase was due to females in adult programs. The percentage of females in associate degree programs dropped. The percentage of females in secondary programs was constant over the decade ranging only from 20 to 22 percent. Total enrollment includes students in 9th and 10th grade.



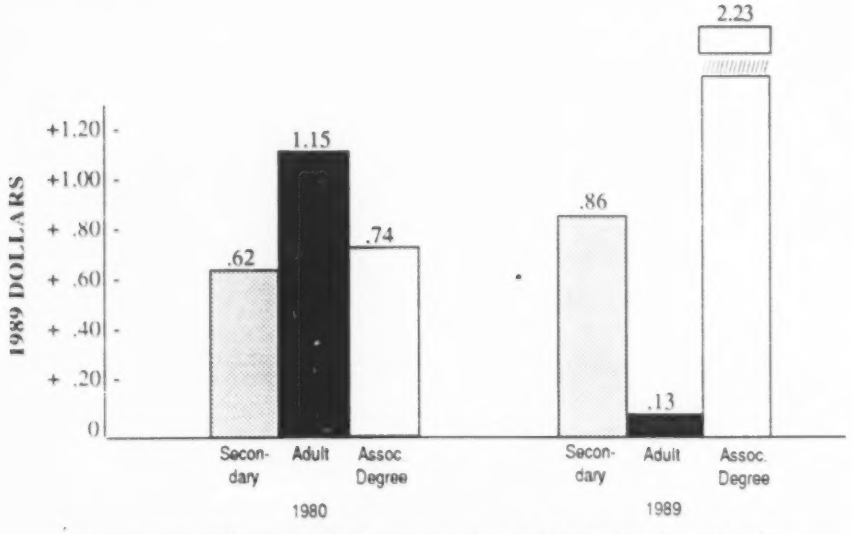
Percent Females in Agriculture

Opportunities: Total employment in agriculture is not expected to grow during the 1990s. Nevertheless, there should be opportunities in horticulture occupations, because jobs are expected to increase faster than workers will be trained. An emerging occupation is aquaculture, the growing of plants in nutrient solutions with or without sand, gravel or other inert material to provide mechanical support.

Agriculture

Wage rates: There was movement toward more equal wages among those who completed full-time adult programs: males earned an average wage of $5.97 per hour and females $5.84, a difference of 13 cents. In 1980, males had earned $1.15 more than females.

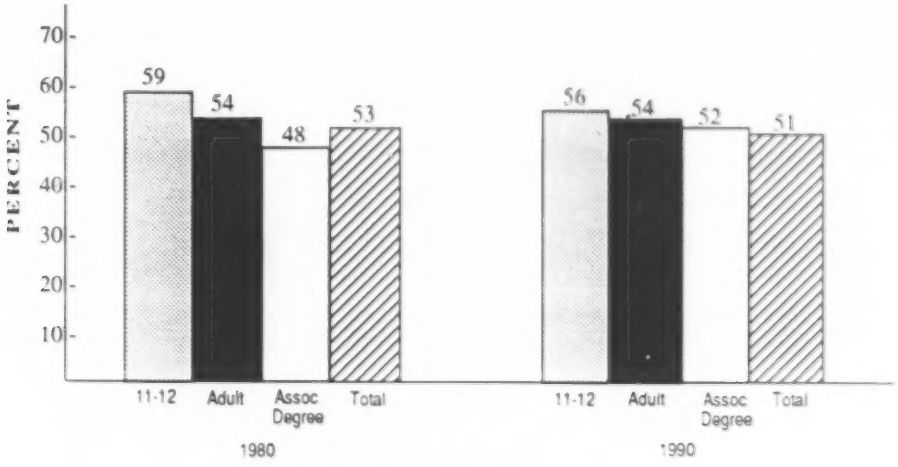
Among those who completed secondary and postsecondary programs, however, the gender differences were larger in 1989 than in 1980. In 1989, the average wage of secondary completers was $5.33 for males and $4.47 for females. The difference was even more pronounced among those who received associate degrees (males $7.73, females $5.50). In 1980 these differences were 62 cents at the secondary level and 74 cents for those with associate degrees.



Average Wage Advantage for Males in Agriculture
Dollars Per Hour Adjusted for Inflation

Marketing

Enrollment: Marketing education has traditionally enrolled almost equal numbers of males and females. The percentage of each gender changes, however, as students progress through school. In grades 9 and 10, males made up over 60 percent of enrollments during the 1980s. In grades 11 and 12, shown in the chart, females were a little more numerous.

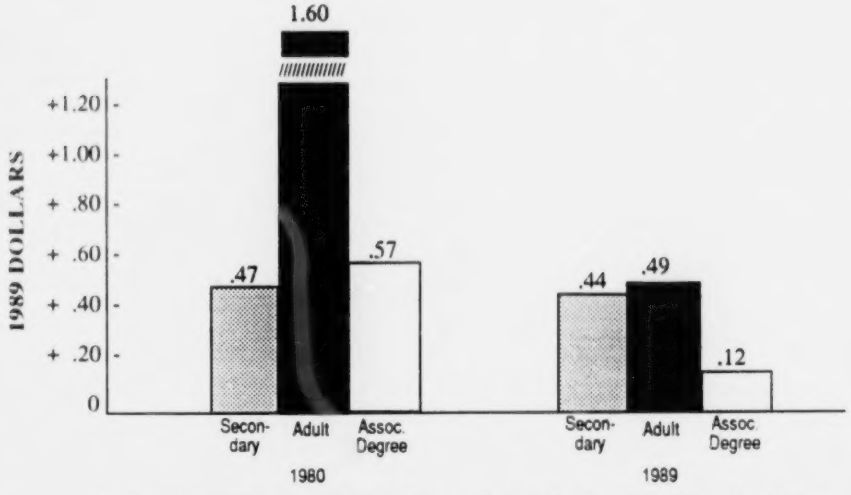


Percent Females in Marketing

Opportunities: Occupations in Marketing that are expected to grow rapidly in the 1990s include apparel and accessories, food service, general merchandising, retail sales persons, and cashiers. Several of the new and emerging occupations involve marketing over cable television: customer order recording specialist, audio-visual technicians, and teletext specialists.

Marketing

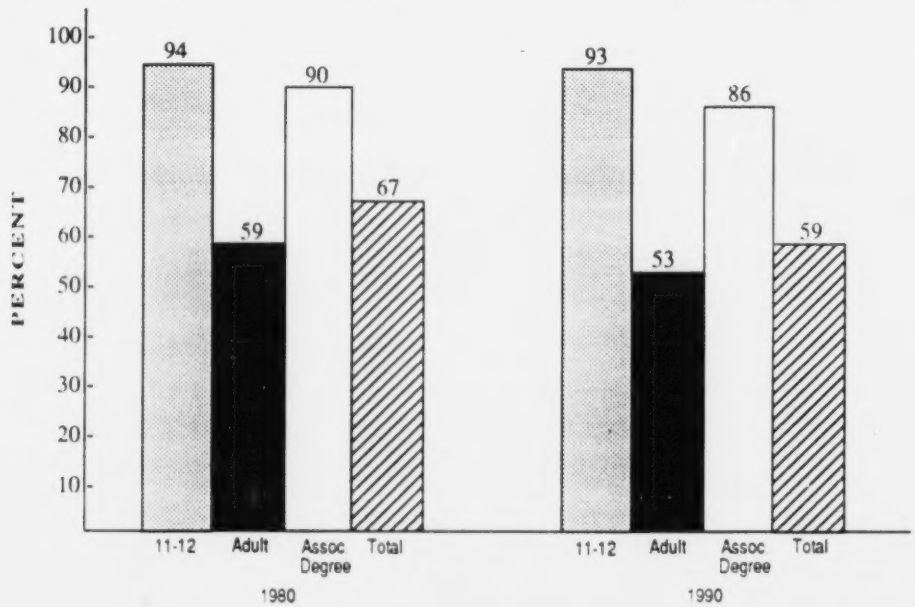
Wage rates: The differences between the wages of males and females who completed marketing programs were smaller in 1989 than in 1980. Males who completed adult programs in 1989 earned $10.45 and females $9.96, a 49 cent difference. In 1980 this difference was $1.60. In 1989 the earnings difference among those receiving associate degrees was 12 cents (males $7.22, females $7.10). In 1980 this difference was 57 cents. At the secondary level in 1989, male graduates earned 44 cents more then females, $4.99 to $4.55. In 1980 the difference was almost the same, 47 cents.



Average Wage Advantage for Males in Marketing Dollars Per Hour Adjusted for Inflation

Health

Enrollment: More than nine out of ten secondary students enrolled in Health programs were female in 1980, and this ratio did not change during the decade. Adult enrollment was more balanced, but this was primarily due to male part-time enrollments. The percentages of females in associate degree and full-time adult programs were just a little lower than in secondary. Total adult enrollment is heavily weighted with part-time students taking short courses such as CPR (cardio-pulmonary resuscitation) instruction.

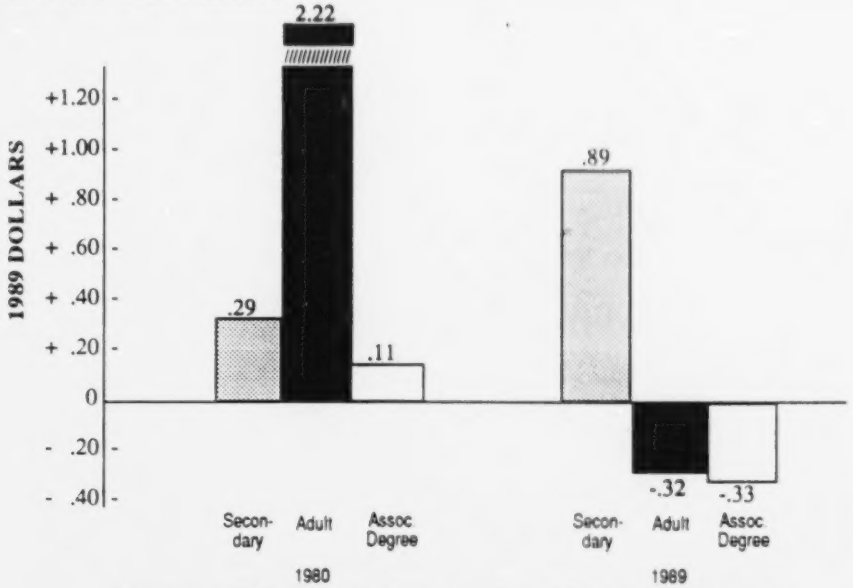


Percent Females in Health

Opportunities: Many health occupations are expected to grow rapidly in the 1990s including several in nursing, dentistry, medical equipment specialties, emergency medical technicians; medical assistants; home health aides; medical records technicians;

medical secretaries; and orderlies and attendants. New and emerging occupations include perfusionist, computer axial tomography (CAT) and positron emission transaxial tomography (PETT) technicians, and bioelectronics technicians.

Wage rates: Despite the female dominance in enrollments, male secondary students who completed their programs in 1989 earned more than females, $5.95 compared to $5.06. In 1980 this difference was 29 cents. Among adult students, however, females who completed programs in 1989 earned more than males ($8.05 compared to $7.73) as did those who received associate degrees ($10.92 females and $10.59 males). In 1980 male adult students earned $2.22 more than females and males who received associate degrees earned 11 cents more than females.



Average Wage Advantage for Males in Health
Dollars Per Hour Adjusted for Inflation

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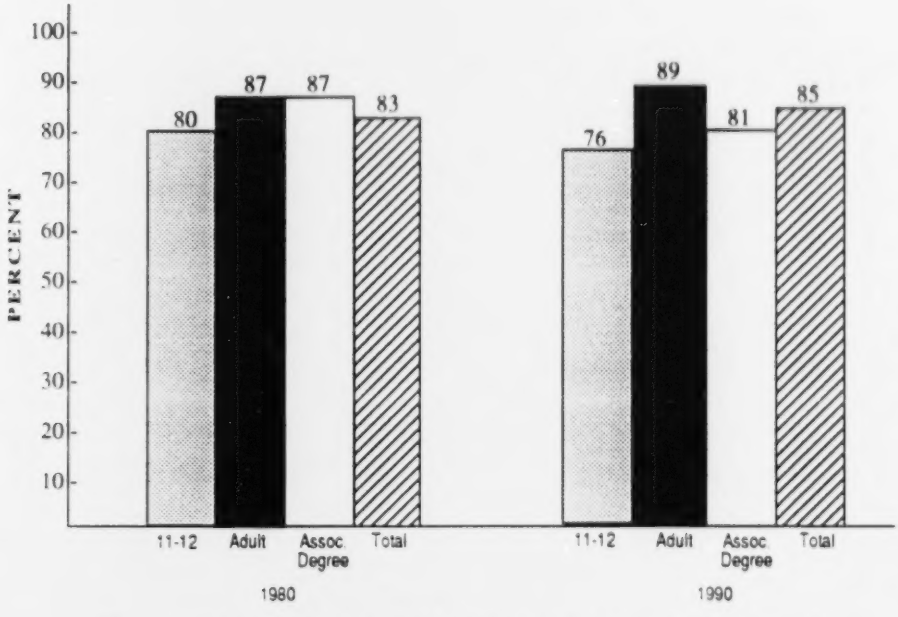
Job Training
Home Economics

Enrollments: Home Economics has traditionally enrolled more females than males both in Job Training programs (those that prepare students for paid employment) as well as Consumer and Homemaking programs (those that teach personal and family living skills). In both, there are more males at the secondary than at the adult level. By 1990, male enrollment in Job Training programs had increased 4 percentage points over 1980 at the secondary level and 6 percentage points in associate degree programs. In adult and total enrollments, however, female percentages were slightly higher in 1990 than in 1980.

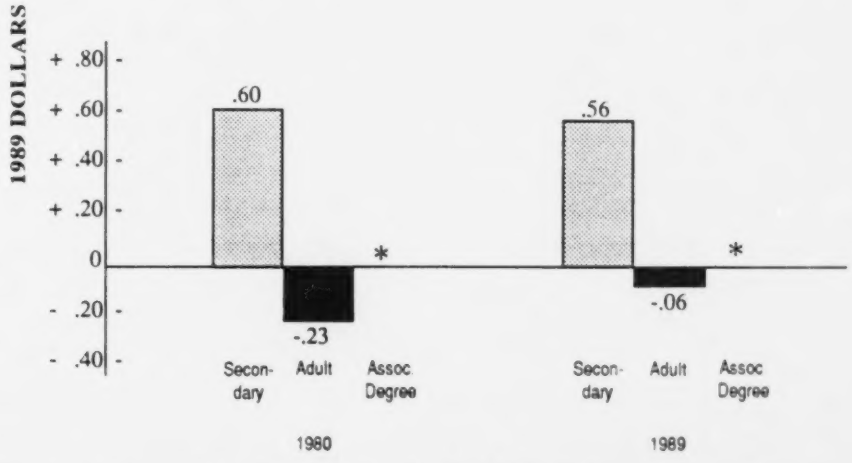


Percent Females in Job Training Home Economics

Job Training
Home Economics

Opportunities: Most of the occupations in Job Training Home Economics that are expected to grow rapidly in the 1990s involve food services: commercial cooks, bakers, dishwashers, and food counter workers. Occupations involving community and home services, such as providin independent living assistance to the elderly, are also expected to grow.

Wage rates: Males who completed secondary programs in 1989 earned $4.69 and females $4.13. This 56 cent difference was slightly less than the 60 cent difference in 1980. Females who completed adult programs in 1989 earned slightly more than males, $4.68 compared to $4.62. This difference, however, was not as large as the 23 cent advantage for females in 1980. Too few males received associate degrees to yield a valid comparison.

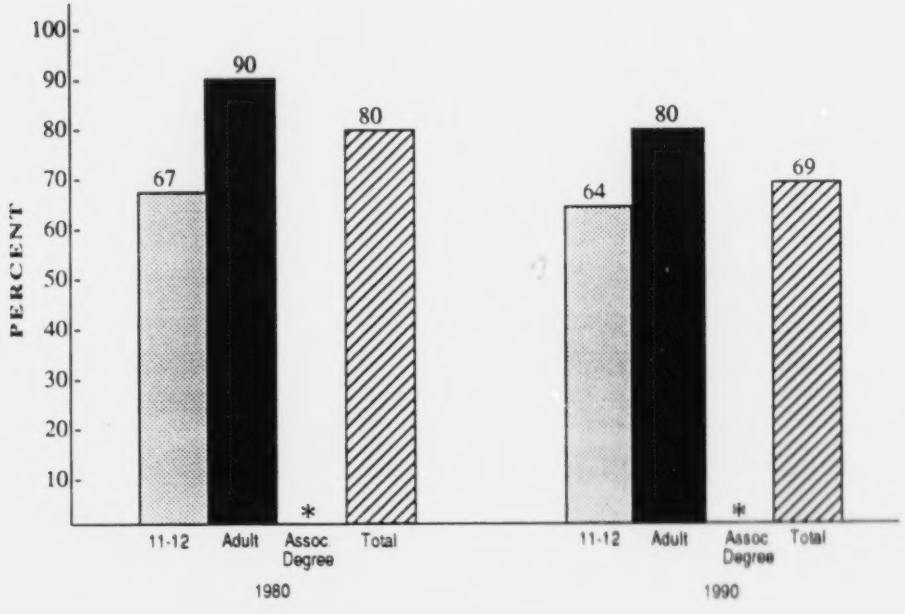


Average Wage Advantage for Males in Job Training Home Economics
Dollars Per Hour Adjusted for Inflation

*There are too few males who earned associate degrees to yield a value comparison.

Consumer and Homemaking

Enrollments: Secondary enrollments in Consumer and Homemaking were higher in grades 9 and 10 than they were in grades 11 and 12. During the 1980s, enrollments in grades 9 and 10 averaged about 57,000 and in grades 11 and 12 about 50,000.



Percent Females in Consumer and Homemaking

* There are no associate degrees awarded in Consumer and Homemaking.

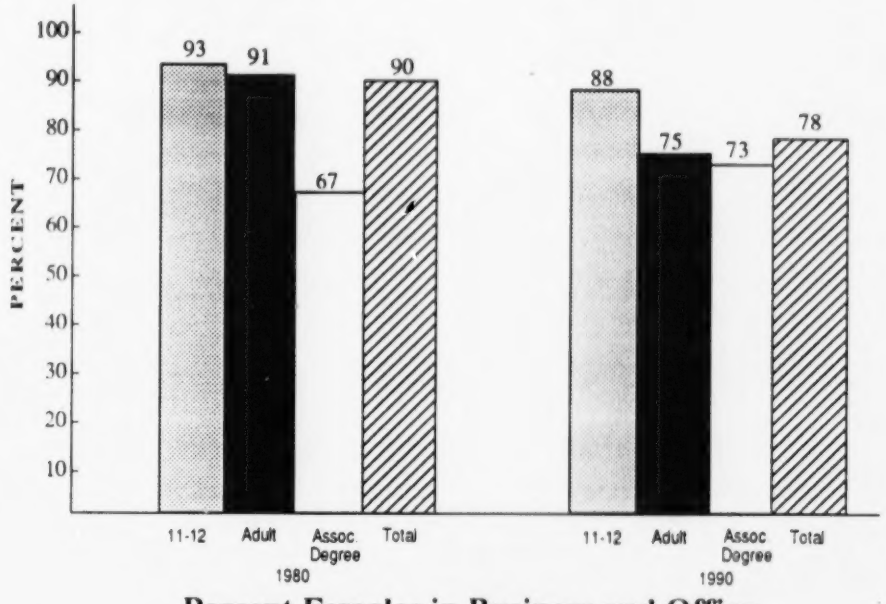
Consumer and Homemaking

It is in these lower grades and in adult enrollments that the most progress was made in moving toward more equal representation of males and females. The chart shows that the percentage of females in grades 11 and 12 changed only 3 percentage points during the 1980s. The percent of females in total enrollment, which includes 9th and 10th grade students, declined 11 points, almost identical to the change in adult enrollments.

Programs in Consumer and Homemaking are not intended to prepare students for paid employment. Consequently no follow-up information is collected on the wage rates of students who complete these programs. Nor is any information presented on future employment opportunities.

Business and Office

Enrollments: Female enrollments continued predominant in Business and Office programs, but male enrollments increased, except for associate degrees. Most of the increased male enrollments were among part-time adults. Most of this increase occurred during the first half of the 1980s.

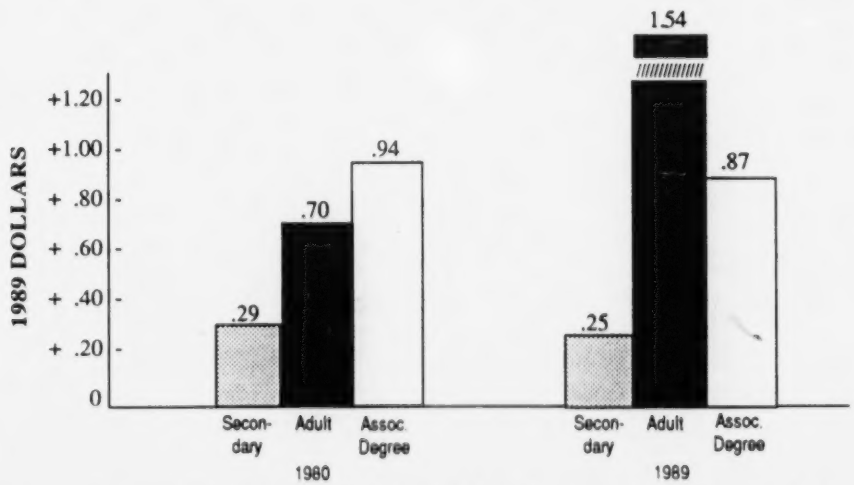


Percent Females in Business and Office

Opportunities: Many occupations in Business and Office are expected to grow rapidly in the 1990s reflecting the continuing trend toward a service and information-based economy. These include accounting and computer applications, business data processing systems, programmers, general office clerks, secretaries, receptions and information clerks, general office information communications, personnel training, bank tellers,

computer console and equipment operators, computer programmers, and travel agents. New and emerging occupations include work station manager (responsible for the information going into an office's information system) and work systems technician (adjusts office work stations to individual needs and preferences).

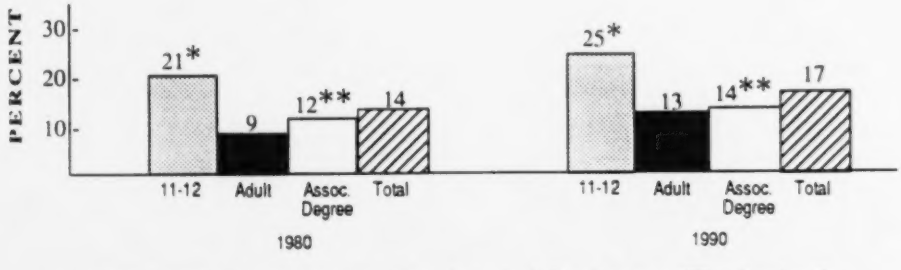
Wage rates: In 1989, as in 1980, males had a wage advantage for all levels of programs. For secondary completers it was 25 cents an hour in 1989 ($5.28 males, $5.03 females). In 1980 this difference was 29 cents. For those who completed adult programs in 1989, the gender difference was $1.54, $8.28 compared to $6.74. In 1980 this difference was 70 cents. For those who received associate degrees in 1989, the gender difference was 87 cents ($7.69 males, $6.82 females). In 1980 this difference was 94 cents.



Average Wage Advantage for Males in Business and Office
Dollars Per Hour Adjusted for Inflation

Trade and Industry/Technical

Enrollments: T & I and Technical programs are two vocational areas that have always enrolled far more males than females. None of the programs offered at the secondary level are classified as technical and very few associate degree are awarded in T & I programs. The percentage of females increased slightly at all levels during the 1980s. Secondary T & I programs enrolled proportionally twice as many females as adult programs. T & I had the largest secondary and adult enrollments of any program area, and there were almost twice as many adult as secondary students.



Percent Females in Trade and Industry/Technical

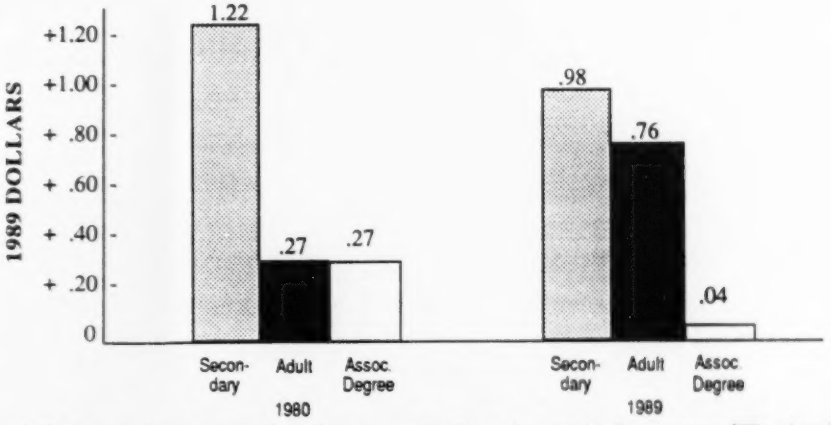
* T&I only ** Technical only

Opportunities: Opportunities in T&I that are projected to grow in the 1990s include construction occupations (brick layers and stonemasons, carpenters, construction laborers and carpenter helpers, drywall installers and finishers, electricians); transportation related (truck driver, auto body repairers, automotive mechanics, diesel mechanics); computer manufacturing inspectors; correctional institution officers, guards, firefighters; cable TV installers, electric power line and cable maintenance mechanics; custodial services; and illustrators/commercial artists. New and emerging occupations are robot installation and repair workers, energy auditors, and microcomputer diagnosticians.

Trade and Industry/Technical

Technical occupations tit are expected to grow rapidly in the 1990s are electrical/ electronic technician, engineering and science technicians, engineering aides, computer service technicians, and broadcast technicians. New and emerging occupations include: laser technician (including dustrial laser process); holographic inspectors (using fiber optics and computers for cality control); computer-aided design and manufacturing technicians; battery (fuel ces) technicians; energy conservation technicians; hazardous waste disposal techniciansand housing rehabilitation technicians.

Wage Rates: Males who copleted secondary programs in 1989 had almost a one dollar advantage in wages, $5.50;ompared to $4.52 for females. In 1980 the advantage for males was larger, $1.22. Th difference among adults who completed programs in 1989 was larger in 1989 ($8.85 nles and $8.09) than it had been in 1980, but the difference among associate degree reoients almost disappeared in 1989 ($8.43 males and $8.39 females).



Average Wage Advntage for Males in Trade and Industy/Technical Dollrs Per Hour Adjusted for Inflation

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Technical Notes

Enrollment Information

Enrollment information is from the Vocational Education Data System maintained by the Division of the Vocational and Career Education, Ohio Department of Education. Enrollment are unduplicated counts for the fall of the year identified.

The charts show the percentage of female enrollment for four categories: total enrollment, secondary enrollment in grades 11 and 12, enrollment in associate degree programs, and total adult full and part-time enrollment, excluding. These categories were chosen because they are the most consistent across program areas.

- Secondary enrollments in grades 11 and 12 are presented because four of the program areas do not have enrollments below grade 11. It would be misleading to compare four-year programs with two-year programs.

- In the adult total, apprenticeships were not included because there were apprentices only in Trade and Industrial programs.

Technical Notes

Wage Information

The information on wage rates is taken from follow-up studies conducted with former students one-year after they completed their programs. The information presented in this report is based on studies conducted during the 1980 and 1989 fiscal years. The 1980 wages were adjusted by the changes in the Consumer Price Index (CPI) to make them comparable with the 1989 wages. The CPI for 1980 and 1989 was obtained from Table 764 (p.473) of the Statistical Abstract of the United States 1991. The data for 1989 are the most recent that are available.

Follow-up information is not collected for secondary students from Consumer and Homemaking programs or for any part-time adult programs.

The information on earnings based on income tax data is from Table IIA-15, page 31, in I. A. Ghazalah, *1989 Long Term Follow-up of Vocational Education Graduates: A Study Based on Federal Income Tax Data.* Athens, OH: Ohio University, 1989.

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Job Opportunities

Information on jobs experiencing faster than average growth is primarily from these sources:

"Table 1, Training Data and Occupational Projections." *The State Plan for the Administration of Vocational Education in Ohio: July 1, 1991 through June 30, 1994.* Columbus, OH: Division of Vocational and Career Education, Ohio Department of Education, pp. 13-19.

Kutscher, Ronald E. "Outlook 2000: The Major Trends." *Occupational Outlook Quarterly,* Vol. 34, No. 3 (Spring 1990, pp. 2-7.

Information on new and emerging occupations is primarily from these sources:

Cetron, Marvin J., with Appel, Marcia. *Jobs of the Future.* New York: McGraw-Hill Book Company, 1984.

Feingold, S. Norman, and Atwater, Maxine H. *New and Emerging Careers: Today, Tomorrow and in the 21st Century.* Garrett Park, MD: Garrett Park Press, 1988.

McGregor, Elizabeth. "Emerging Careers." *Occupational Outlook Quarterly* (Fall 1990), vol. 34, no. 3, pp. 22-25.